

Decommissioning in the Netherlands

July 2006

Current Status

In 1997 the Dodewaard Nuclear Power Plant (BWR, 58MWe) was shut down after 28 years of operation. The plant had been built primarily as a means of gaining experience with nuclear energy and was never meant to operate economically. In a liberalised electricity market this NPP is a non-economic liability.

Since 1997 the plant is in a state of decommissioning. All spent fuel has been removed from the reactor and shipped to the UK for reprocessing. Since mid 2005 the plant is in the phase of safe enclosure. This phase is foreseen to last for 40 years.

The Nuclear Power plant Borssele (PWR, 450 MWe) has a licence to operate until 2034. The decision to extend the licence was taken in 2006 in relation to investments in renewable energy systems and in relation to requirements according to the Kyoto protocol.

National policy

Regulation

All activities relative to the import, transport, use, storage, disposal and export of radioactive material are subject to the provisions of the Nuclear Energy Act, last revised in 2005¹. This includes the construction and operation of nuclear power plants as well as the decommissioning of these facilities.

The license for the decommissioning of the Dodewaard NPP has been granted in 2002. The Environmental Protection Act requires that prior to the actual dismantling of a nuclear facility an Environmental Impact Assessment (EIA) is performed, describing alternative decommissioning options. The EIA report for the decommissioning of Dodewaard NPP was submitted as a supporting document in the licensing procedure. Comparison of the three options considered in the EIA for Dodewaard (see strategy hereafter) led to results which are not discriminating with respect to radiation protection and general safety, but showed substantial cost differences.

Strategy

International consensus exists that there are basically three different strategies for the dismantling of nuclear power stations:

- direct dismantling within a period of ten years;
- postponed dismantling within some 50 years, after bringing the facility in a safe enclosure;
- "in situ" decommissioning.

These three strategies were also studied in the EIA for the Dodewaard NPP. In principle, the operator of the NPP expressed a preference for one of these strategies on the basis of a decommissioning plan. Since the environmental impact is minute for all three strategies the operator decided in favour of the least expensive strategy, namely postponed dismantling. A safe enclosure period of 40 years is foreseen. Although the government has a preference for direct dismantling for various reasons, no objection was raised against the decision of the operator. After dismantling of all the structures of the NPP the end-point will be the "green meadow" situation, meaning that the area will be decontaminated to such low levels of residual radioactivity that it can be cleared for unrestricted use.

¹Nuclear Energy Act, Bulletin of Acts, Orders and Decrees, 82, 1963 as revised in 2005

For the Borssele NPP, it has been decided to dismantle directly after closure at the end of 2033. This strategic decision was part of the negotiations in order to extend the lifetime of this nuclear power plant (see Current Status above). In 2007 a national decommissioning strategy will be established by the government.

Decommissioning technique and inspection

New equipment needed for decommissioning, decontamination and dismantling activities will be checked on the appropriate safety and quality requirements based on the internationally agreed codes (ASME, KTA, CE).

The organisation of the inspections has changed for the period of safe enclosure. Radiation protection and conventional safety aspects are considered only. Personnel remains continuously available to look after the installations.

Radioactive waste management

The Nuclear Energy Act stipulates that a licensee can dispose of waste only if disposal is specifically approved in a license or by handing it over to the authorised waste management organisation. As such, the Central Organisation for Radioactive Waste, COVRA, is the only organisation authorised by the Government of the Netherlands. COVRA N.V. is a state owned company.

COVRA is responsible for the treatment and storage of all kinds of radioactive waste (LLW, ILW, HLW, spent fuel). This comprises also the waste associated with dismantling of a nuclear facility. Storage takes place on one single location in the south-west of the country, for a period of at least 100 years.

Funding

Although a strict legal requirement to ensure that adequate funding is available for decommissioning does not yet exist, there is a general understanding that the "polluter pays principle" applies. Consequently, the operators of NPP's have made financial provisions for decommissioning. The foreseen changes in the Nuclear Energy Act will also address specifically the subject of decommissioning. It will become a requirement to assure that sufficient funds are available when needed for decommissioning and dismantling. Criteria will be set for the management of these funds, such as internal or external investments, required minimal financial rating, etc.

Competent bodies

In the decommissioning of nuclear facilities basically the same ministries are involved as in commissioning and licensing, each for its specific area of competence. Together these ministries form the competent body. The ministries most involved are:

- Ministry of Housing, Spatial Planning and the Environment, for protection of the general public and the environment;
- Ministry of Economic Affairs, with the responsibility to ensure an undisturbed supply of electricity to the public;
- Ministry of Social Affairs and Employment, for protection of the workers exposed to radiation from practices involving radioactive material.